

DESCRIPTION AND RATING

The 12DQ7 is a miniature power pentode primarily designed for use as the video output amplifier in television receivers. Features of the tube include high transconductance, low interelectrode capacitances, and high power sensitivity. In addition, it has a controlled heater warm-up characteristic.

GENERAL

ELECTRICAL

	Series	Parallel	
Cathode—Coated Unipotential			
Heater Voltage, AC or DC	$12.6 \pm 10\%$	6.3	Volts
Heater Current	0.3	$0.6 \pm 6\%$	Amperes
Heater Warm-up Time*	...	11	Seconds
Direct Interelectrode Capacitances†			
Grid-Number 1 to Plate, maximum		0.1	$\mu\mu\text{f}$
Input		10.0	$\mu\mu\text{f}$
Output		3.8	$\mu\mu\text{f}$

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

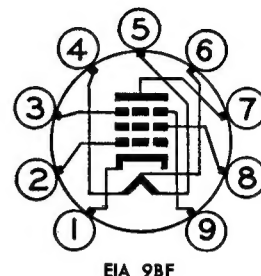
Plate Voltage	330	Volts
Screen-Supply Voltage	330	Volts
Screen Voltage—See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	6.5	Watts
Screen Dissipation	1.1	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.25	Megohms
With Cathode Bias	1.0	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

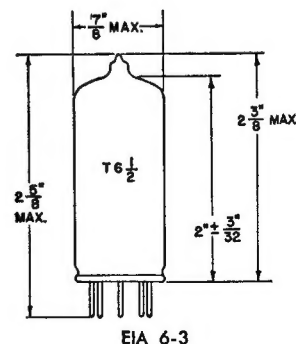
BASING DIAGRAM



TERMINAL CONNECTIONS

- Pin 1—Cathode
- Pin 2—Grid Number 1
- Pin 3—Internal Shield and Grid Number 3 (Suppressor)
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Heater Center-Tap
- Pin 7—Plate
- Pin 8—Grid Number 2 (Screen)
- Pin 9—Internal Shield and Grid Number 3 (Suppressor)

PHYSICAL DIMENSIONS



CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

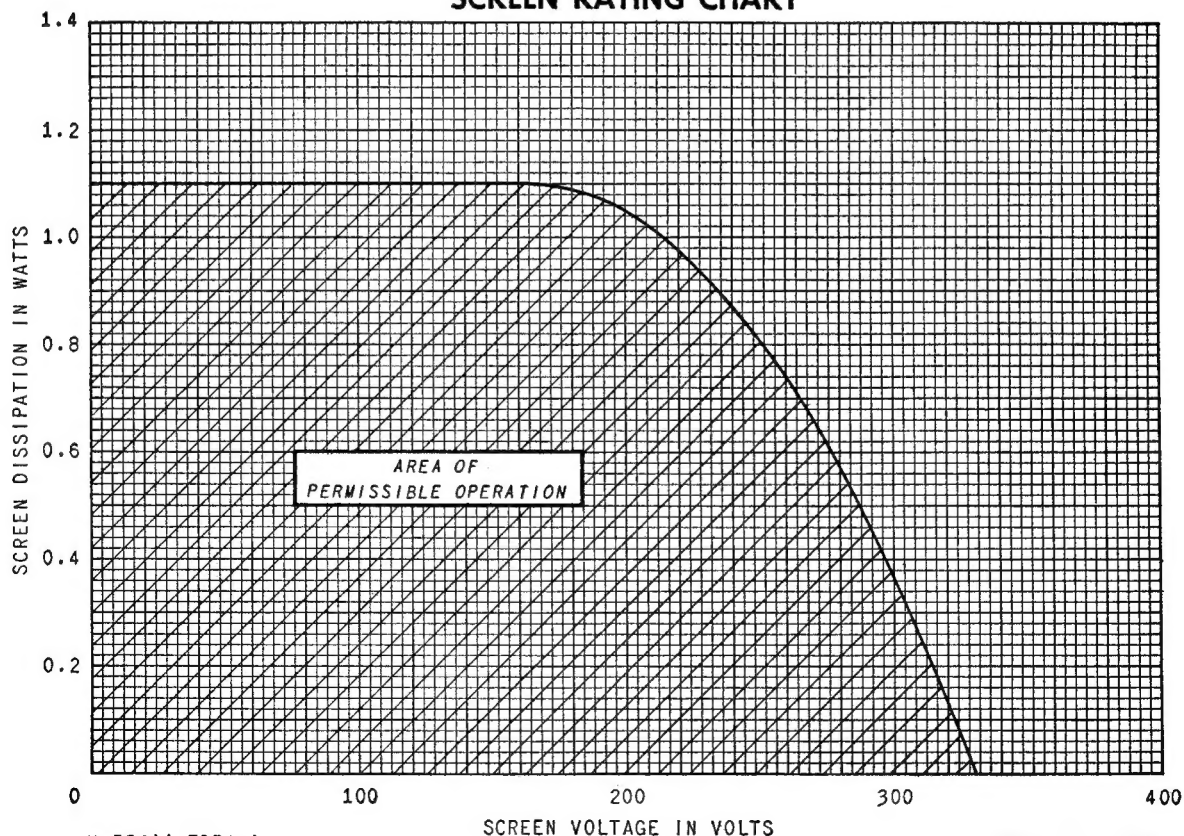
Plate Voltage	40	200	Volts
Suppressor—Connected to Cathode at Socket			
Screen Voltage	125	125	Volts
Grid-Number 1 Voltage	0†	...	Volts
Cathode-Bias Resistor	68	Ohms
Plate Resistance, approximate	53000	Ohms
Transconductance	10500	Micromhos
Plate Current	45	26	Milliamperes
Screen Current	16	5.6	Milliamperes
Grid-Number 1 Voltage, approximate I _b = 100 Microamperes		—9	Volts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

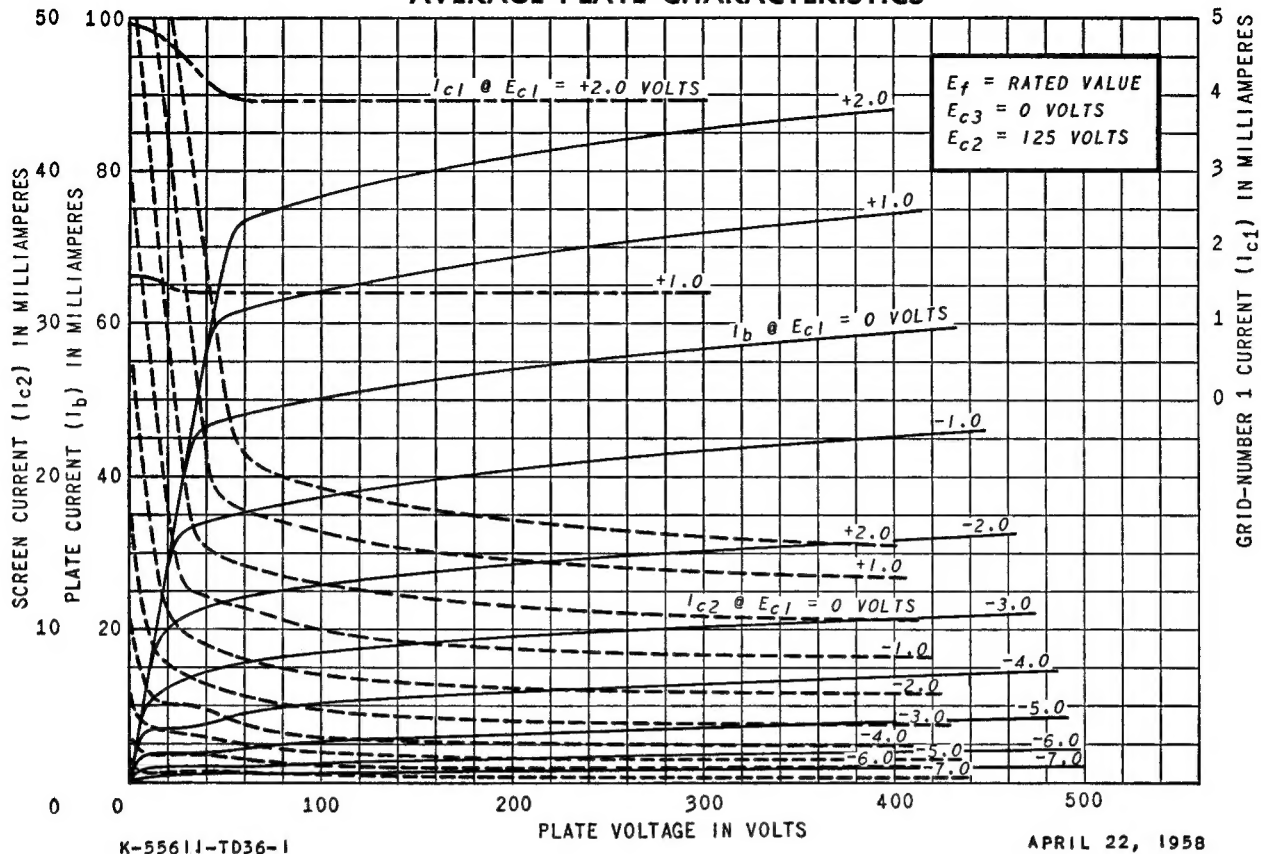
† Without external shield.

‡ Applied for short interval (two seconds maximum) so as not to damage tube.

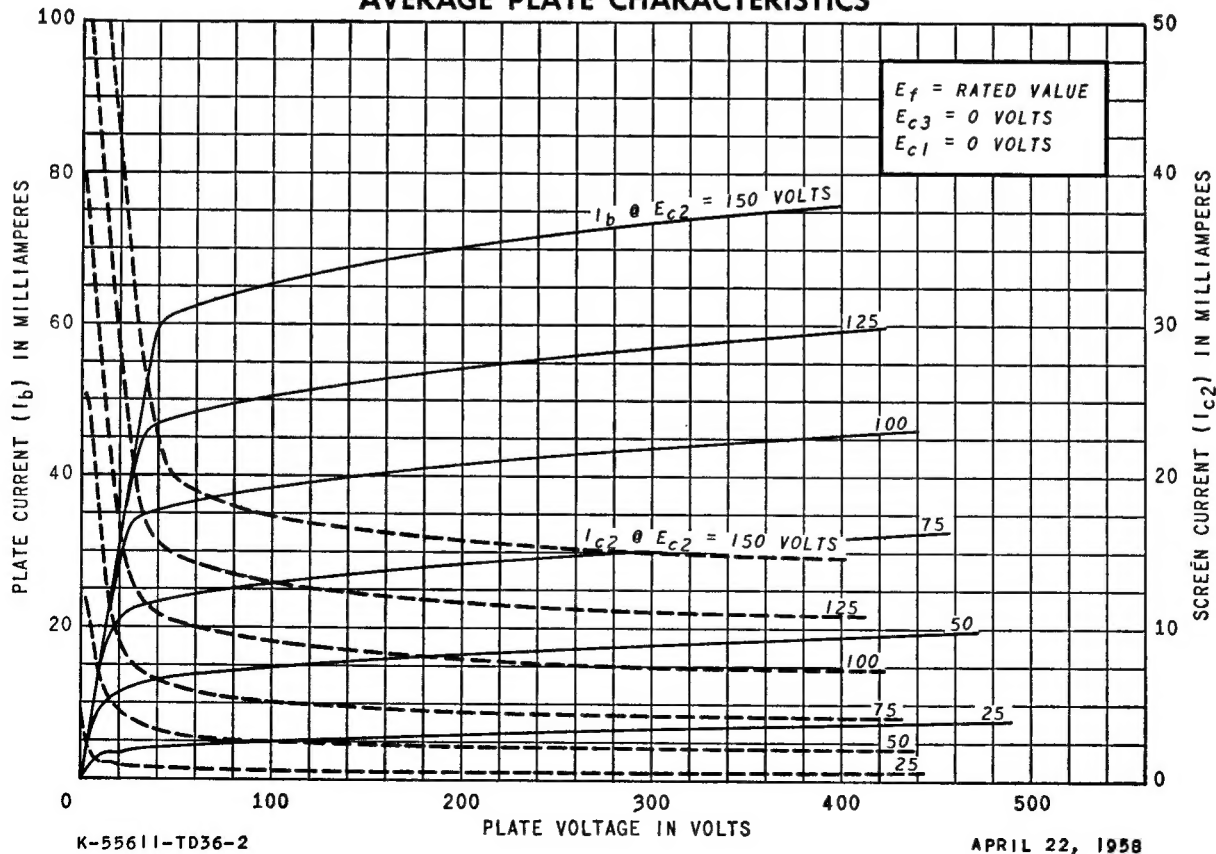
SCREEN RATING CHART



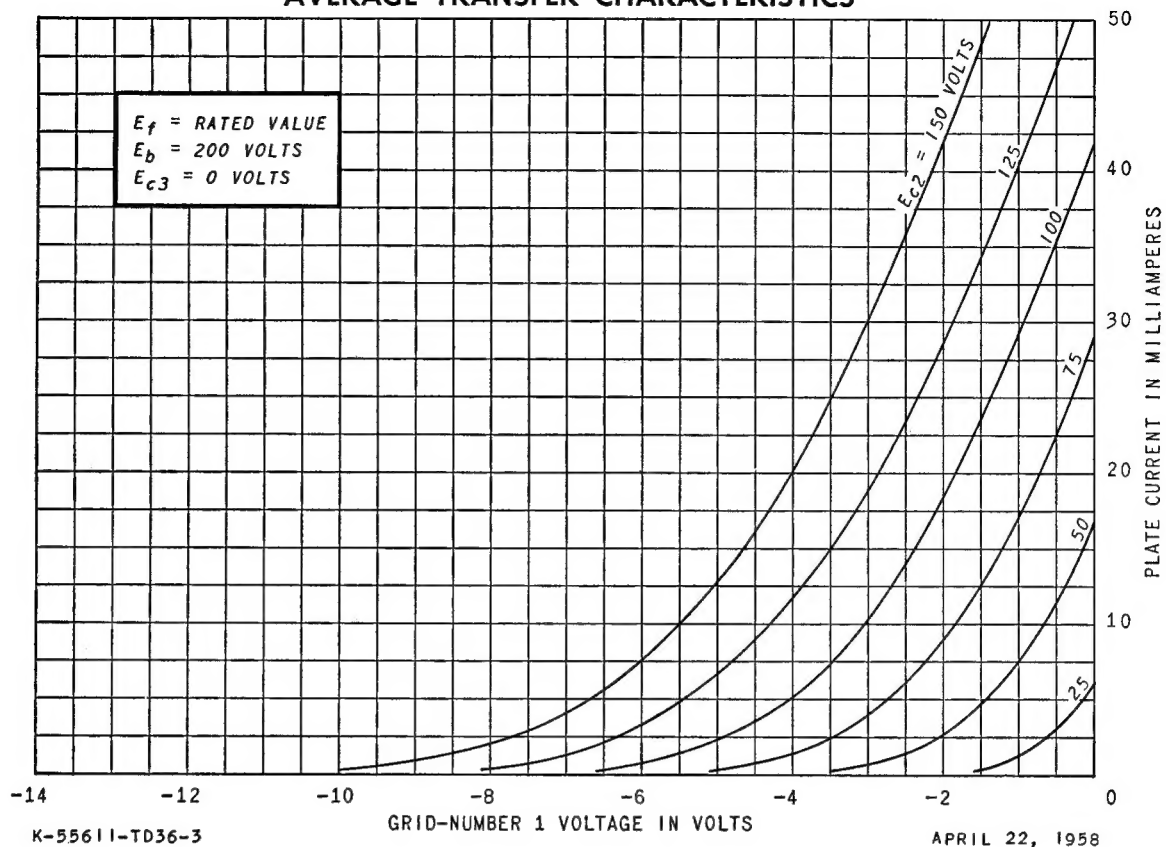
AVERAGE PLATE CHARACTERISTICS



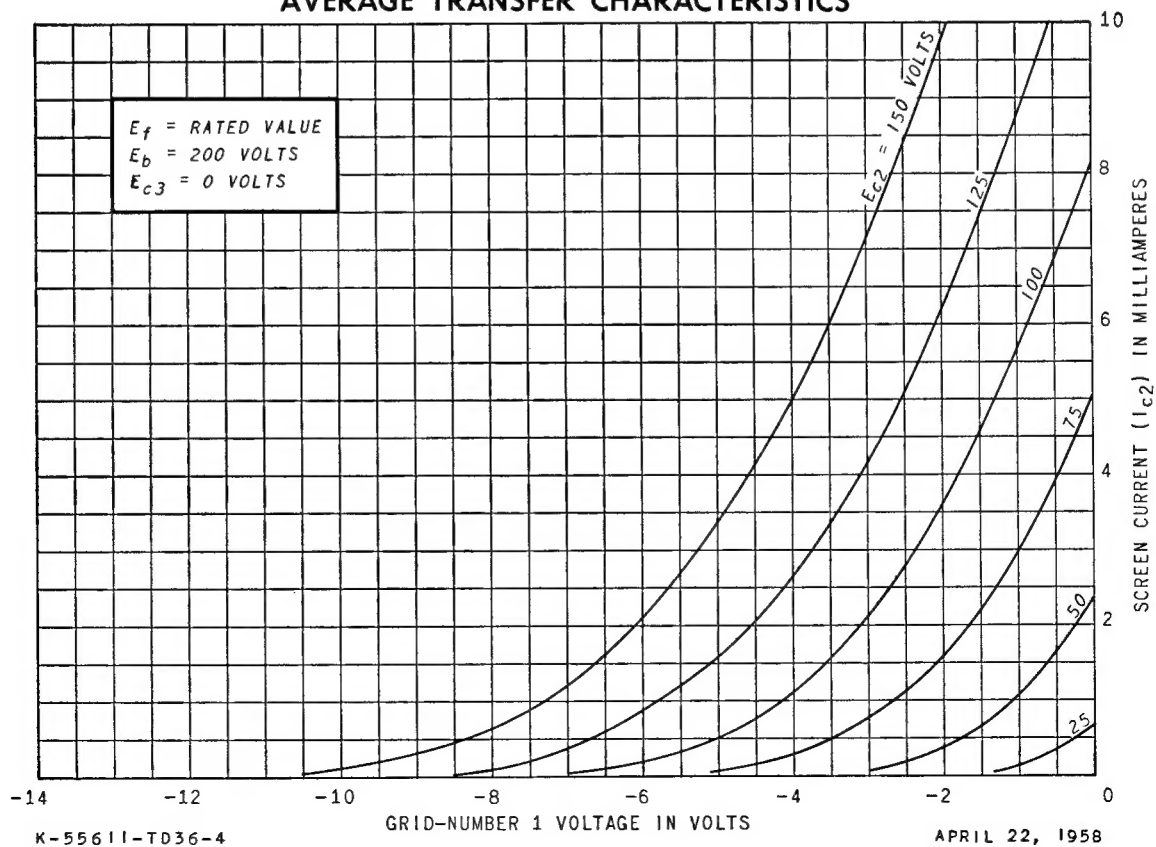
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



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